

**METHOD, APPARATUS AND PROGRAM STORAGE DEVICE FOR  
CORRECTING A BURST OF ERRORS TOGETHER WITH A RANDOM  
ERROR USING SHORTENED CYCLIC CODES**

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ABSTRACT

A method, apparatus and program storage device for correcting a burst of errors together with a random error using cyclic or shortened cyclic codes is disclosed. The present invention solves the above-described problems by providing a received word to a syndrome register defined by a polynomial of degree  $n-k$ , said polynomial generating a cyclic or shortened cyclic code, wherein  $n$  is the length and  $k$  is the number of  
10 information bits in the codeword. The syndrome gets modified each time the received (possibly noisy) word is shifted. The contents of the syndrome register are processed to identify a random error together with an error burst of the received word. Then correction of the random error and the burst is made and a corrected codeword is  
15 generated.